

A COMPARISON OF CONTEMPORARY
SEISMIC MIGRATION METHODS

by

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ABSTRACT

Contemporary seismic migration methods are evaluated and compared by migrating field seismic records from three dip lines traversing a faulted monocline. Dips change from nearly flat to nearly vertical taxing migration methods to the fullest extent. Well information and surface geology are used as check points in evaluating the methods.

Results of the investigation show that the straight-ray methods and the Modified Curved-ray Method are rapid but are inaccurate at high dip and moderate depth. The methods properly locate structural highs but exhibit incorrect dip. Their migrated cross sections show incorrect location and throw of faults and exhibit intersecting dip segments from both sides of fault blocks.

The curved-ray methods more accurately position steeply dipping reflections. These methods take much more initial

preparation, since charts needed for their use may require the operation of a digital computer. The Hagedoorn Method gives the most accurate and clearest migration picture since each trace is migrated, but the method in its present method of operation is too time-consuming for conventional interpretive crews. The Curved-ray Method, using wave front charts, produces the best overall migrating results taking into consideration time, accuracy, and ease of interpretation.

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